demographic size of ACs) were calculated for selected tariffs. **RESULTS:** We observed lack of consistency in structure and contents of tariff lists and in tariff levels, as exemplified by: different categorization of services; incomplete listing of services; different terminologies; different levels of detail for common services (e.g. MRI: 2–127 options by body area and/or complexity); wide ranges of tariffs for most items (e.g. specialist visit: €56–€191, general ward per diem: €82–€569, simple MRI: €120–€634). Wide variations were also observed for other diagnostic investigations, (non-)surgical procedures, laboratory tests and DRGs. **CONCLUSIONS:** Wide ranges in tariffs for health resources commonly used in economic evaluations were identified across ACs, with a difference between minimum and maximum values of at least factor 2. There exists no evidence on how tariffs are calculated and if they reflect real cost. Available AC tariffs should be used with caution and a simple or weighted average across AC tariff lists may be used as proxies for nation-wide costs. Elaboration of a nation-wide list would avoid possible bias from analysts in the selection of cost values to obtain given results.

PMC8

BURDEN OF DISEASE AND ECONOMIC EVALUATION: ARE WE INVESTIGATING WHAT IT REALLY MATTERS?

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OBJECTIVES: We examined the association between economic evaluation studies performed in Spain in 1983–2008 and the burden of disease in the population. **METHODS:** Cross-sectional observational study. Electronic databases (Pubmed/MEDLINE, SCOPUS, ISI Web of Knowledge, CRD, IME, IBECS) and reports from public agencies were systematically reviewed. Inclusion and exclusion criteria and a set of variables were defined to analyze the characteristics of the papers selected. Using the Global Burden of Disease (GBD) study classification the following measures were calculated: years of life lost (YLLs), years lived with disability (YLDs), disability-adjusted life-years (DALYs), and mortality by cause. Correlation and linear regression models were used. **RESULTS:** Cardiovascular diseases (15.7%), infectious and parasitic diseases (15.3%), and malignant neoplasms (13.2%) were the conditions most commonly addressed. Accidents and injuries, congenital anomalies, oral conditions, nutritional deficiencies and other neoplasms were the categories with a lowest number of studies (0.6% from the total for each of them). The disease sub-categories most prevalent in the studies were lower respiratory infections (5.7%), ischemic heart disease (5.7%), hepatitis B and C (3.3%) and HIV/AIDS (3.1%). For GBD categories ($n = 20$), a correlation was seen with: mortality 0.67 ($p = 0.001$), DALYs 0.63 ($p = 0.003$), YLLs 0.54 ($p = 0.014$), and YLDs 0.51 ($p = 0.018$). By diseases sub-categories ($n = 51$), the correlations were low and non statistically significant. **CONCLUSIONS:** There is a mild-moderate association of economic evaluations with the main causes of burden of disease. For some conditions, the data show over or under-representation of studies related to their burden generated. The burden of disease is a criterion that, in combination with efficiency and equity, would allow to set recommendations to guide debates on health research priority setting.

PMC9

A NEO-RICARDIAN APPROACH TOWARD DISCOUNTING

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BACKGROUND: The major focus of the history of economic thought has been devoted to defining a scientific theory of value. An even harder task entails formulating a theory of *intertemporal* value. Work on this theory date back to the birth of modern economic thought. For example, some authors have argued that an intertemporal utility based theory of value involves the explanation of a quantity which can be directly observed and measured in terms of a quantity which cannot. Major current debates on discounting therefore surround the need for a scientific definition and the ethics towards intergenerational justice. **OBJECTIVES:** We investigate how several current issues in discounting might be irrelevant by adopting a Neo-Ricardian view of intertemporal value by recursively applying valuation of a commodity from value of input commodities, thereby simplifying to the Physiocratic School. We further investigate how our empirical model might be extended to current utilitarian philosophy. **METHODS:** We adopt a Sraffian approach and devise a pure value-growth matrix that relies only on empirical data. We first derive a 2×2 matrix and then a 3×3 matrix. We use health effects, income and a third externality for the derivations. **RESULTS:** It seems that the Neo-Riccardian approach provides the necessary requirements towards satisfying a *scientific* definition of intertemporal value and allows extension of the classical framework of health and wealth with a 3rd dimension of externalities. Furthermore, by redefining the pure growth term in our 2×2 matrix with the Ramsey discount rate, our results simplify to current economic theory. **CONCLUSIONS:** Although modern economic theory explains value from a utilitarian viewpoint, it seems that it lacks robustness in explaining intertemporal value. Therefore, we suggest that the Sraffian School of economic thought should also be considered when attempting to formulate a discount rate for health effects, within a concept of *sustainable* growth.

PMC10

RELIABILITY OF MANUFACTURERS' BUDGET IMPACT ESTIMATES IN POLAND

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OBJECTIVE: To verify the reliability of the methodology used in the manufacturers' Budget Impact Analyses (BIAs) submitted in reimbursement dossier to Polish HTA Agency, we compared public payer (National Health Fund—NHF) actual expenditures on selected drugs with their estimated costs. **METHODS:** BIAs of medicines reimbursed for at least one year and assessed previously in Agency were selected for the analysis. The BI estimated by the manufacturer in the first year after product's introduction to reimbursement was used. Estimated size of target population was compared with the actual one. The actual data was obtained from the NHF. BIAs for selected medicines were critically appraised to determine any variables that may have affected its reliability. **RESULTS:** 20 BIAs met inclusion criteria and were included into the study. Forty-five percent (9/20) of the BI expenditures were underestimated. Median and mean difference between actual and estimated expenditure were 17,22% and 30,25% respectively. The overestimation was found in 55% BIAs (11/20); median = 262,26%, mean difference = 2267,25%. Population size was underestimated in 65% (13/20) of the BIAs. Median and mean difference between actual and estimated population were 25,61% and 33,93% respectively. Overestimation of the population was found in 35% (7/20) of the BIAs; median = 566,67%, mean difference = 573,28%. The main factors that could influence differences between predictions and actual spending were: underestimated (65%) or overestimated (35%) number of patients eligible for treatment, overestimated (30%) or underestimated (25%) market share, wrong assumption on 100% compliance (15%). **CONCLUSION:** The study has demonstrated large variances between predicted budget impact and actual expenditures on drugs. It also revealed significant weaknesses in the quality of submitted BIAs, e.g.: errors in calculations, very limited data provided by manufacturer that unable to complete revision and reproduce of figures in the calculation.

PMC11

ARE THRESHOLD RANGES FOR COST PER QALY A BARRIER TO RESEARCH FOR LIFE EXTENDING TREATMENTS

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As they are currently used thresholds for cost per QALY may provide a disincentive for companies to invest in research for therapies that prolong life in conditions with an already high treatment cost. Cost per QALY thresholds, although not the sole basis for decision making are a major influence on whether a technology is considered cost-effective by NICE. Discussions have centred on the most appropriate threshold level and how its value should be determined. However a consequence of cost per QALY thresholds that is not discussed is the impact they may have on future health care research. The cost per QALY for renal dialysis has been estimated at £30,000[1], the higher end of what NICE considers acceptable. We have therefore reached the ceiling for the cost of treating renal disease. Assuming that utility is not improved a treatment that extends life will be at additional cost and have a cost per QALY greater than £30,000. Manufacturers of health care technologies may consider that the risk of not getting a product approved on cost-effectiveness grounds is not worth the financial investment in its development. As health care costs continue to grow the management costs of more conditions will exceed £20,000 per year and future research may be stifled as manufacturers seek to develop products that replace rather than add to current treatments. Since the background treatment cost would cancel out in an incremental analysis a treatment could be more cost-effective than the one it replaces but perversely can still be at an increased cost which raises the cost per QALY of standard treatment above £20,000 or £30,000. As treatment costs for more conditions increase to threshold values (even if they are raised) manufactures may be advised to consider realigning their portfolio and investment to other diseases.

PMC12

ASSESSMENT OF THE WORKLOAD REAL TIME DEDICATED TO EACH PATIENT IN INTENSIVE CARE UNITS (ICU): PRELIMINARY RESULTS OF THE CRRÉA STUDY

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OBJECTIVES: The objective of the CRRéa study is to assess the real daily cost of a patient's stay in ICU in France. We present here preliminary results regarding the average time spent per patient by different health caregivers. **METHODS:** A prospective multicentric health economic study was performed in 23 ICUs of different French hospitals randomly selected from the PMSI database (French National Hospital database). In a one day study, 5 adult patients were randomly selected among patients with a simplified severity score ≥ 15 in each ICU. Data on all the resources used, treatments administered, biological tests performed, etc. and time spent by different health caregiver to take care of each patient over a 24 hour period (direct and indirect interventions) were collected through a time and motion analysis method involving the professionals themselves. **RESULTS:** A total of 109 patients (median age = 66 years, 65% males) of 22 intensive care units (15 polyvalent, 3 surgical and 4 medical ICUs) were included. 104 of them were followed over 24 hours (there were 2 deaths and 3 early withdrawals). On the day of the study, 84% of patients were mechanically